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**Abstract**

The present invention relates to a communication device for receiving and transmitting OFDM signals in a wireless communication system, in which each OFDM signal is composed of a plurality of subcarrier signals each being assigned to a respective transmission channel of said communication system, comprising diversity antenna means (10) including a plurality of antenna elements (12); examination means (26) adapted for examining, individually for each antenna element (12), at least one subcarrier signal of an OFDM reception signal received by a respective one of said antenna elements (12) and for gaining, from the result of such subcarrier signal examination, attenuation information on attenuation properties of at least some of the transmission channels associated to the respective antenna element (12); and amplitude adjustment means (30) adapted for adjusting, individually for each antenna element (12), the amplitude of at least one subcarrier signal of an OFDM transmission signal to be transmitted from a respective one of said antenna elements (12) in accordance with said attenuation information, such as to give a higher amplitude to said subcarrier signal of said OFDM transmission signal when said attenuation information indicates a lower attenuation of the associated transmission channel, and to give a lower amplitude to said subcarrier signal of said OFDM transmission signal when said attenuation information indicates a higher attenuation of the associated transmission channel. In this way, transmission of useless energy on heavily disturbed transmission channels can be avoided.

(Fig. 2)